

IN THE CLAIMS:

Please amend claims 1, 4-7 and 10, and add claims 17-20 as follows:

Claim 1 (Currently Amended): An inductor comprising: ~~a carbon nanotube and/or carbon nanofiber synthesized in a shape of a coil, wherein the carbon nanotube and/or carbon nanofiber is synthesized between catalysts fixed at desired locations on a substrate, and wherein the catalysts are transition metals or alloys of transition metal~~

a substrate;

a plurality of catalysts located on the substrate, wherein the catalysts include transition metals, and the catalysts comprise a plurality of crystal faces; and

carbon nanotubes and/or carbon nanofibers synthesized between the catalysts, wherein the carbon nanotubes and/or carbon nanofibers are grown on the crystal faces of the catalysts, the carbon nanotubes and/or carbon nanofibers being entangled with each other, thereby growing in a shape of a coil.


[Claims 2-3 (Cancelled).]

Claim 4 (Currently Amended): An inductor as claimed in claim 1, wherein each of the transition metal metals is ~~one~~ selected from the group consisting of iron (Fe), nickel (Ni), and cobalt (Co).

Claim 5 (Currently Amended): An inductor as claimed in claim 1, wherein the carbon ~~nanotube and/or carbon nanofiber is~~ nanotubes and/or carbon nanofibers are formed by one of a

thermal decomposition method, a catalyst thermal decomposition method, a plasma vapor deposition method, and a hot-filament vapor deposition method.

Claim 6 (Currently Amended): An inductor as claimed in claim 1, wherein the carbon ~~nanotube and/or carbon nanofiber is~~ nanotubes and/or carbon nanofibers are doped with elements such as phosphorus (P), boron (B), silicon (Si), and nitrogen (N).

 Claim 7 (Currently Amended): An inductor comprising ~~an aggregate of carbon nanotube and/or carbon nanofibers, in which the carbon nanotubes and/or carbon nanofibers respectively synthesized in a shape of coils are compressed, wherein the carbon nanotube and/or carbon nanofiber is synthesized between catalysts fixed at desired locations on a substrate~~

a substrate;

a plurality of catalysts located on the substrate, wherein the catalysts comprise a plurality of crystal faces; and

an aggregate of carbon nanotubes and/or carbon nanofibers synthesized between the catalysts, wherein the carbon nanotubes and/or carbon nanofibers are grown on the crystal faces of the catalysts, the carbon nanotubes and/or carbon nanofibers being compressed and entangled with each other, thereby growing in a shape of a coil.

Claim 8 (Previously Presented): An inductor as claimed in claim 7, wherein the carbon nanotubes and/or carbon nanofibers are formed by one of a thermal decomposition method, a catalyst thermal decomposition method, a plasma vapor deposition method, and a hot-filament vapor deposition method.

Claim 9 (Previously Presented): An inductor as claimed in claim 7, wherein the carbon nanotubes and/or carbon nanofibers are doped with elements such as phosphorus (P), boron (B), silicon (Si), and nitrogen (N).

B
Claim 10 (Currently Amended): An inductor comprising a complex of carbon nanotubes and/or carbon nanofibers and a matrix such as an insulator, a ceramic, and a semiconductor, wherein the carbon nanotubes and/or carbon nanofibers being synthesized respectively in a shape of a coil are synthesized respectively in a shape of coils between a plurality of catalysts having crystal faces, wherein the carbon nanotubes and/or carbon nanofibers are grown on the crystal faces of the catalysts, the carbon nanotubes and/or carbon nanofibers being entangled with each other, wherein the matrix is ferrite, and wherein the complex contains magnetic powder such as ferrite powder added in the complex.

Claim 11 (Previously Presented): An inductor as claimed in claim 10, wherein the carbon nanotubes and/or carbon nanofibers are formed by one of a thermal decomposition method, a catalyst thermal decomposition method, a plasma vapor deposition method, and a hot-filament vapor deposition method.

Claim 12 (Previously Presented): An inductor as claimed in claim 10, wherein the carbon nanotubes and/or carbon nanofibers are doped with elements such as phosphorus (P), boron (B), silicon (Si), and nitrogen (N).

[Claims 13-14 (Cancelled)]

Claim 15 (Original): An inductor as claimed in claim 10, wherein the complex further comprises a magnetic layer such as a ferrite layer applied on a surface of the complex.

Claim 16 (Original): An inductor as claimed in claim 10, wherein an inductance of the inductor is adjusted by adjusting a ratio of compounding the matrix and the carbon nanotubes and/or carbon nanofibers.

13/ Claim 17 (New): The inductor of claim 1, wherein a characteristic of adsorption of one of the crystal faces is different from the characteristic of adsorption of other crystal faces, and a growing speed of carbon on the crystal faces of the catalysts is controlled in accordance with the characteristic of adsorption of one or more of the crystal faces.

Claim 18 (New): The inductor of claim 17, wherein each of the transition metal is selected from the group consisting of iron (Fe), nickel (Ni), and cobalt (Co).

Claim 19 (New): The inductor of claim 17, wherein the carbon nanotubes are grown by a thermal decomposition process comprising:

putting a powder of metal in a container;

heating the container to a temperature between 680 °C and 1500 °C during an effective heating time; and

injecting a mixture of an effective amount hydrogen per on minute and an effective amount of acetylene per one minute, and maintaining an appropriate hydrogen pressure and an appropriate acetylene pressure.

Claim 20 (New): The inductor of claim 19, wherein the heating time is 15 minutes, the hydrogen pressure is 48,000 Pascal and the acetylene pressure is 6,650 Pascal.
